

**REMARKS**

Claims 1-9 are pending in the present application and are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,542,905 to Fogel ("Fogel") in view of U.S. Patent No. 6,526,358 to Matthews ("Matthews") and further in view of U.S. Patent No. 6,192,360 to Dumais et al. ("Dumais").

**Rejection of Claims 1-9 Under 35 U.S.C. § 103(a)**

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as unpatentable over Fogel in view of Matthews and further in view of Dumais. This rejection is respectfully traversed.

In the Examiner's Response to Arguments, the Examiner asserts that the instant application recites that deterministic and probabilistic models are well known in the art. The application recites:

As is known in the art, with a deterministic model, specific outcomes of an experiment can be accurately predicted; whereas, with a probabilistic model, relative frequencies for various possible outcomes of the experiment can be predicted but not without uncertainty.

Although a deterministic model and an probabilistic model may be known in the art, it is not known in the art to "evaluate the initial probability of the first hypothesis based on the at least one cause." The Examiner has recognized that Fogel does not explicitly teach this limitation and continues to recognize this deficiency on page 3 of the Office Action. On page 4 of the Office Action, the Examiner asserts that Fogel explicitly describes a probabilistic model. But as the Examiner has also admitted, Fogel does not sufficiently meet a prima facie case of obviousness because Fogel does not teach this limitation. More specifically, regardless of any use of probability, Fogel does not evaluate an initial probability of a first hypothesis based on the at least one cause.

In order to cure the deficiencies of Fogel, the Examiner asserts that "Matthews teaches evaluating the initial probability of the first hypothesis based on the at least one cause (col. 6, lines 19-64)." However, Matthews fails to cure the deficiencies of Fogel because Matthews fails to teach or suggest "evaluating the initial probability of the first hypothesis based on at least one cause."

Claim 1 evaluates the initial probability. "[T]he belief network 200 is first loaded with initial distributions or probabilities consistent with the state of knowledge prior to considering evidence." Page 18, lines 4-6. According to an embodiment and as similarly recited in claim 1,

“the initial distributions of variables  $x$  and  $y$  are hypotheses.” Page 18, lines 9-10. “The Bayesian belief network is now used to determine the probability of the null hypothesis for each variable.” Page 19, lines 1-2. Once there is a change in the variable, claim 1 recites determining a cause of the change in value and “evaluating the initial probability of the first hypothesis.”

Matthews, as cited by the Examiner, fails to teach or suggest “evaluating the initial probability.” Although Matthews recites “determining the highest probability hypothesis” and “calculat[ing] the probability that a particular fault has occurred,” Matthews does not “evaluate” that probability calculation. *See* Col. 6, lines 19-64. And Matthews’s determination of “the probability that a fault occurred” does not teach or suggest evaluating the initial hypothesis. In other words, using the example recited in Matthews, Matthews does not *evaluate* the “highest probability hypothesis.”

Furthermore, Matthews’s “hypothesis tester” does not “evaluate the initial probability of the first hypothesis,” as recited in claim 1. “The hypothesis tester 58 utilizes a multiple hypothesis statistical test to detect and isolate leaks and blockages. Specifically, the hypothesis tester 58 uses a Bayesian likelihood ratio test to select the hypothesis most likely to be try given the current value of the innovation vector.” Col. 6, lines 21-26. In other words, the hypothesis tester chooses from a list of pre-determined hypotheses, but does not determine a first hypothesis and then evaluate the initial probability of the first hypothesis.

Dumais fails to cure the deficiencies of Fogel and Matthews. On page 3 of the Office Action, the Examiner asserts that “Dumais in the same field of art (Bayesian networks) teaches that this initial knowledge represents a prior probability assigned to a given hypothesis  $i$  (col. 3, lines 35-67).” However, Dumais does not teach “evaluating the initial probability of the first hypothesis based on the at least one cause,” where the cause is a plausible source of error of the change of value in the at least one variable of the risk assessment system. Instead, Dumais “briefly introduces” a Bayesian network. But Dumais’s recitation is not sufficient to satisfy the *prima facie* case of obviousness.

Thus, neither Fogel, Matthews, nor Dumais, alone or in combination, teaches or suggests “evaluating the initial probability of the first hypothesis based on the at least one cause,” as recited in claim 1. Because independent claim 1 is patentable over Fogel, Matthews, and Dumais for the reasons stated above, claims 2-9 are patentable over the cited art for the same reasons

stated above. Therefore, the undersigned representative respectfully requests that the Examiner withdraw the rejection of claims 1-9 under 35 U.S.C. § 103(a).

**CONCLUSION**

The undersigned representative respectfully submits that this application is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that the prosecution might be advanced by discussing the application with the undersigned representative, in person or over the telephone, we welcome the opportunity to do so. In addition, if any additional fees are required in connection with the filing of this response, the Commissioner is hereby authorized to charge the same to Deposit Account No. 50-4402.

Respectfully submitted,

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